OUR ASTRONOMICAL COLUMN.

COMET 1906g (THIELE).—From observations made with the Lick Observatory 12-inch refractor, Messrs. Aitken and Fath have computed a set of parabolic elements for Thiele's comet. These elements, together with an ephemeris extending to January 19, appear in No. 103 of the Lick Observatory Bulletins, and give the time of perihelion passage as 1906 November 21. The comet is at present (January 3) about 5 m. east of ι Draconis, and is travelling nearly due east, its brightness being about one-half that at the time of discovery (mag. 8·5).

THE LUNAR CRATER LINNÉ.—In a recent number of the *Astronomische Nachrichten* Dr. Wirtz pointed out that an apparent enlargement of the white spot surrounding Linné could be produced by interposing a shade-glass between the telescope and the eye, and from this fact he argued that the enlargement of the spot observed during a lunar eclipse might be merely a subjective phenomenon due to the diminution of light.

In No. 4141 of the same journal Prof. W. H. Pickering points out that whilst this apparent enlargement, which Dr. Wirtz describes, undoubtedly exists, its magnitude is much less than that recorded by the eclipse observers. Furthermore, the majority of the eclipse observations indicate that the white spot was decidedly larger after the passing than at the same length of time before the encroachment of the earth's shadow, whereas if the enlargement were merely a subjective effect it should not survive the re-illumination. The fact that Dr. Wirtz has observed similar results in the case of the crater Linné B is not regarded by Prof. Pickering as an argument against their reality, for if the phenomenon is due to the deposition of hoar-frost it should, *ceteris paribus*, be general over the moon's visible surface, and he has himself obtained similar results for Sulpicius Gallus A (*Astronomische Nachrichten*, No. 4141).

EPHEMERIDES OF COMETS AND PLANETS.—With the commencement of the new year the editors of the *Astronomische Nachrichten* are issuing the ephemerides of comets and planets in a separate publication called the *Ephemeriden-Zirkular der Astronomischen Nachrichten*. The annual subscription is 10 marks, and orders should be addressed directly to the "Expedition in Kiel, Niemannsweg 103."

A RÉSUMÉ OF AËROGRAPHY.—In No. 22 (1906) of the *Revue générale des Sciences*, L'Abbé Th. Moreux discusses the present state of our knowledge of Mars, especially in reference to the more recent observations of Prof. Lowell and other aërographers, although in the first part he details the work of the earlier observers, Herschel, Beer and Madler, Secchi, Lockyer, Kaiser, and others. Whilst agreeing with Lowell as to the bolder features, M. Moreux evidently entertains very grave doubts as to the objective reality of many of the fine rectilinear *canaux* of which the former observer has recorded 420, and further states that he has never seen the alleged *oases* which are said to mark their intersections.

M. Moreux also discusses the gemination of the canals at some length, and then gives in detail the results of his own observations during the opposition of 1905, giving a number of drawings and a chart to illustrate his points. From these observations he is convinced that the persistent transparency of the Martian atmosphere has been overrated in the past. To illustrate this conviction he gives instances of cloud formations blotting out the detail, locally, on the planet's surface.

JUPITER'S SATELLITES.—No. 4143 of the *Astronomische Nachrichten* contains an ephemeris for Jupiter's sixth satellite, computed by Mr. J. E. Martin, of Washington, from unpublished elements derived by Dr. Ross. The ephemeris extends to April 17, 1907, and gives the differences (Satellite–Jupiter) in α and δ, and the position angle and distance from the planet for every fifth day.

In the same journal Herr K. Graff records the observation, on September 24, 1906, of the occultation of an 8·5 magnitude star by Jupiter's third satellite.

THE CAUSES OF SOLAR PHENOMENA.—We have received from Don Horacio Bentabol y Ureta, of Madrid, a monograph dealing with the causes which produce spots, prominences, faculæ, &c., on the sun. The discussion is too lengthy to give the author's points *in extenso*, but he favours the meteoritic origin of the spots, and shows how the other solar, and the correlated meteorological, phenomena may be accounted for on this hypothesis.

PRIZES AWARDED AND PROPOSED BY THE PARIS ACADEMY OF SCIENCES.

AT the anniversary meeting of the Paris Academy of Sciences held on December 17, 1906, the president, M. H. Poincaré, announced that the prize awards for the year 1906 were as follows:—

PRIZES AWARDED.

Mathematics.—Grand prize in the mathematical sciences, divided between H. Padé (1500 francs), R. de Montessus (1000 francs), and M. Auric (500 francs), for their work on the convergence of continued algebraical fractions. The Francœur prize to Émile Lemoine, for his works on geometry. The Poncelet prize to M. Guichard, for the whole of his contributions to geometry.

Mechanics.—A Montyon prize to Georges Marié, for his study of the oscillations of railway carriages; the Boileau prize to Edmond Maillet, for his investigations on the yield of deep springs.

Navigation.—The extraordinary prize of 6000 francs, divided between MM. Daveluy, Rollet de l'Isle, J. Th. Saconney, and G. B. Girard; the Plumey prize to Prof. Stodola, for his work on steam turbines.

Astronomy.—The Pierre Guzman prize was not awarded. The Lalande prize to R. G. Aitken and W. J. Hussey, for their work on double stars; the Valz prize to J. Palisa, for the whole of his astronomical researches; the Janssen medal to A. Riccò, for his observations on the sun.

Geography.—The Tchihatchef prize to Jean Baptiste Louis Pierre; the Binoux prize to MM. Larras and E. de Larminat; the Delalande prize to L. Seurat, for his exploration of the islands near Tahiti.

Physics.—The Hébert prize to G. Gouré de Villemontée, for his researches on the conditions governing differences of contact potential; the Hughes prize to Daniel Berthelot, for his application of interference methods to the measurement of high temperatures and his researches on the compressibility of gases.

Chemistry.—The Jecker prize to M. Grignard, for his researches on the organo-magnesium compounds; the Cahours prize to M. Martine, for his work on menthone and menthol and their derivatives; a Montyon prize (unhealthy trades) to Victor Georgel, for his researches on leadless glazes.

Botany.—The Desmazières prize to Jules Cardot, for his researches on mosses; the Montagne prize to Émile Boudier, for his work on mycology; the De Coincy prize to E. G. Camus and Mlle. A. Camus, for their work on the classification and monography of the willows of Europe.

Anatomy and Zoology.—The Savigny prize to Paul Pallary, for his work on northern Africa and the Red Sea; the Thore prize to C. Houlbert, for his entomological work; the Gama Machado prize to Antoine Henri Mandoul and Pierre Stéphan (in equal parts).

Medicine and Surgery.—Montyon prizes to Paul Poirier and A. Charpy, for their work on anatomy; J. Albarran, for his work on renal functions; and Ch. Porcher, for his studies on lactosuria. Mentions are also accorded to Robert Lœwy, for his memoir on fractures; to Adolphe Javal, for his memoir on the treatment of Bright's œdema; and to MM. Guillemard and Moog, for their work on the influence of high altitudes on the general nutrition. Citations are accorded to Lucien Graux, Louis and Paul Murat, and A. Gougenheim. The Barbier prize to Adrien Lucet, for his memoirs on the bacteriology of suppuration in animals of the bovine species and on pathogenic moulds, with a mention to J. V. Detroye, for his work on cancers and tumours in animals. The Bréant prize to M. Rémy, for his quantitative studies on serums; the Godard prize to L. H. Farabeuf, for his monograph on the blood-vessels of the genito-urinary organs; the Baron Larrey prize to Dr. Morel, for his memoir on epidemic and endemic diseases in the French colonies; the Bellion prize to Georges G.

Paraf, for his work on hygiene; the Mège prize to S. Turchini, for his experimental study on the power of the X-ray tube under different conditions of use.

Physiology.—A Montyon prize to E. Meyer, for his researches in experimental physiology from 1886 to 1904, a mention being accorded to J. Sellier for his researches on digestion and the digestive ferments; the Philipeaux prize to Stéphane Leduc, for the whole of his researches in experimental physiology, M. Caubert receiving a mention; the Lallemand prize to André Léri, for his clinical and anatomical researches on tabes; the Pourat prize to Georges Bohn, for his researches on phototropism; the Martin-Damourette prize to Lucien Butte, for his researches on the physiological and therapeutical action of Guaco (*Aristolochia cymbifera*), a very honourable mention being accorded to Pierre Sée for his study of the therapeutical applications of the oxydases and the metal ferments.

Statistics.—A Montyon prize to Dr. Ausset, for his memoir on the infantile mortality in the Departement du Nord, a very honourable mention being accorded to Dr. Butte for his memoir on the statistics of syphilis in Paris, and an honourable mention to Dr. Ott for his work on infant mortality in the town of Lillebonne.

General Prizes.—The Lavoisier medal to S. M. Jörgensen, for his researches in inorganic chemistry; the Berthelot medal to S. M. Jörgensen and M. Martine; the Trémont prize to M. Frémont, for his experimental researches on metals; the Gegner prize to J. H. Fabre; the Lannelongue prize divided between Mme. Beclard and Mme. Cusco; the Jerome Ponti prize divided between M. Offret, for his work in mineralogy, and M. Gruvel, for his researches on the Cirrhipedæ; the Wilde prize divided between M. Termier, for his researches on the geological structure of the eastern Alps, and M. Massau, for his work in applied mechanics, and especially for his researches in graphical integration; the Saintour prize divided between Ant. Magnin, for his work in botanical geography, and L. Laurent, for his work in plant palæontology; the Houllevigue prize divided between G. André, for his researches in the physiological chemistry of plants, E. Bataillon, for the whole of his researches in experimental embryology, and A. Pizon, for his work on the development of the tunicates; the Cuvier prize to Dr. Raffray, for the whole of his work on insects; the Jean Reynaud prize to Pierre Curie, for his work on piezoelectricity and the properties of the radio-active bodies; the Baron de Joest prize to M. Demoulin, for his researches in infinitesimal geometry; the prize founded by the Marquise de Laplace to Paul Pierre Lévy, and the prize founded by M. Félix Rivot to MM. Lévy, Bélugou, Petit, and Lane.

Prizes Proposed.

The subjects proposed by the academy for prizes for 1908 are as follows:—

Geometry.—The grand prize of the mathematical sciences (3000 francs). The question proposed for 1908 is the following:—to realise an important progress in the study of the deformation of the general surface of the second degree; the Francœur prize (1000 francs), for discoveries or work useful to the progress of the sciences of pure and applied mathematics.

Mechanics.—A Montyon prize (700 francs), for the invention or improvement of instruments useful to the progress of agriculture, the mechanical arts or sciences; the Fourneyron prize (1000 francs), for a theoretical or experimental study of steam turbines.

Navigation.—The extraordinary prize of 6000 francs, for work tending to increase the efficacy of the French naval forces; the Plumey prize (4000 francs), for improvements in steam engines or any other invention contributing to the progress of steam navigation.

Astronomy.—The Lalande prize (540 francs), for an observation, memoir, or work most useful to the progress of astronomy; the Valz prize (460 francs), to the author of the most interesting astronomical observation made during the year; the Damoiseau prize (2000 francs), the question proposed is the theory of the planet Eros based upon known observations; the Janssen prize (a gold medal), for a discovery or work constituting an important progress in physical astronomy.

Geography.—The Gay prize (1500 francs), for geographical studies on Morocco: the Tchihatchef prize (3000 francs), for the exploration of the lesser-known regions of Asia, the work being done in any branch of science; the Binoux prize (2000 francs), for work in geography and navigation; the Delalande-Guérineau prize (1000 francs).

Physics.—The Hébert prize (1000 francs), for the best treatise or most useful discovery for the practical employment of electricity; the Hughes prize (2500 francs), for discoveries or works contributing to the progress of physics.

Chemistry.—The Jecker prize (10,000 francs), for work in organic chemistry; the Cahours prize (3000 francs), for the encouragement of young chemists; Montyon prize (a prize of 2500 francs and a mention of 1500 francs), for a discovery of a means of rendering an art or trade less unhealthy.

Mineralogy and Geology.—The Fontannes prize (2000 francs), for the best palæontological publication; the Bordin prize (3000 francs), for a study of the fossil fishes of the Paris basin.

Botany.—The Desmazières prize (1600 francs), for the best work during the current year on cryptogams; the Montagne prize (1500 francs), for work on the anatomy, physiology, development, or description of the lower cryptogams; the de Coincy prize (900 francs), for a work on phanerogams.

Anatomy and Zoology.—The Savigny prize (1300 francs), for assisting young travelling zoologists, with special reference to the invertebrate animals of Egypt and Syria; the Thore prize (200 francs), for the best work on the habits and anatomy of a species of European insect.

Medicine and Surgery.—A Montyon prize (prize of 2500 francs, mentions of 1500 francs), for work or discoveries useful in the art of healing; the Barbier prize (2000 francs), for a discovery in the surgical, medical, or pharmaceutical sciences, or in botany with reference to the art of healing; the Bréant prize (100,000 francs), for the discovery of a drug which will cure Asiatic cholera in the great majority of cases, or for indicating in an absolutely certain manner the causes of Asiatic cholera, so that by the suppression of these causes the epidemic can be stopped, or, in the alternative, for the discovery of a prophylactic treatment as certain as that of vaccination for small-pox. If the capital sum is not awarded, the interest will be given as a prize for a rigorous demonstration of the existence in the atmosphere of material taking part in the production or propagation of epidemic diseases. The Godard prize (1000 francs), for the best memoir on the anatomy, physiology, and pathology of the genito-urinary organs; the Baron Larrey prize (750 francs), for a work by an army or navy surgeon or physician treating of the subject of military medicine, surgery, or hygiene; the Bellion prize (1400 francs), for the author of works or discoveries "especially profitable to the health of man or the amelioration of the human species"; the Mège prize (10,000 francs); the Serres prize (7500 francs), for the best work dealing with general embryology applied as far as possible to physiology and medicine.

Physiology.—A Montyon prize (750 francs), for a work on experimental physiology; the Philipeaux prize (900 francs), for the same; the Lallemand prize (1800 francs), to recompense or encourage works relating to the nervous system; the Martin-Damourette prize (1400 francs), for work in therapeutical physiology; the Pourat prize (1000 francs), for a work on the immediate destination of the energy devoted to maintaining life in warm-blooded subjects.

Statistics.—A Montyon prize of 1000 francs and a mention of 500 francs.

General Prizes.—The Arago medal, the Lavoisier medal for services to chemistry, the Berthelot medal, the Trémont prize (1100 francs), the Gegner prize (3800 francs), the Lannelongue prize (2000 francs), the Wilde prize (one of 4000 francs or two of 2000 francs), the Victor Raulin prize (1500 francs), the Saintour prize (3000 francs), the prize founded by Mme. la Marquise de Laplace, the Félix Rivot prize (2500 francs), the Jerome Ponti prize (3500 francs), the Houllevigue prize (5000 francs), the Estrade-Delcros prize (8000 francs).

Of these prizes, those bearing the names of Lalande, Tchihatchef, Desmazières, Lavoisier, and Wilde are expressly stated to be free from any restriction as to nationality.